DOCUMENT RESUME

ED 062 639 CG 006 798

AUTHOR	Hall, R. Vance; And Others
TITLE	Modification of Behavior Problems in the Home with a Parent as Observer and Experimenter.
INSTITUTION	Kansas Univ., Lawrence.
SPONS AGENCY	Office of Education (DHEW), Washington, D.C.
PUB DATE	70
NOTE	20p.
EDRS PRICE	MF-$0.65 HC-$3.29
DESCRIPTORS	*Behavior Change; *Behavior Problems; *Operant Conditioning; *Parent Participation; *Reinforcement

ABSTRACT

Four experiments are discussed, in which parents devised and conducted procedures to alleviate their children's behavior problems. The behavior difficulties treated included infrequent use of an orthodontic device, the low-level performance of household tasks, whining and shouting, and a long duration of dressing time. The techniques used to increase the frequency of appropriate behaviors included different types of positive reinforcement (token and social), contingent punishment, and extinction. The parent used recording procedures which did not upset the daily reoutine, and demonstrated that scientific rigor could be applied in a household setting. (Author/KS)

FILMED FROM BEST AVAILABLE COPY

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

ED 062 639

CG 006 798

ODIFICATION OF BEHAVIOR PROBLEMS IN THE HOME WITH A PARENT AS OBSERVER AND EXPERIMENTER[1]

by

R. Vance Hall, Saul Axelrod[2], Lucille Tyler, Ellen Grief, Fowler C. Jones, and Roberta Robertson

University of Kansas

Most behavior modification experiments have been conducted by sophisticated researchers in institutional, classroom, or laboratory settings. Some studies, however, have employed parents as therapists for their childrens' behavior problems and were carried on in the home environment (Hawkins, Peterson, Schweid, and Bijou, 1966; Zeilberger, Sampen, and Sloane, 1968; Wahler, 1969). The subjects for these experiments exhibited behavior difficulties which were sufficiently severe that they were referred to a psychological clinic. The children were then evaluated and their parents were given suggestions on the type of behavior modification procedures which might alleviate their childrens' problems. The data collection tasks were conducted by the experimenters or trained observers in the children's homes.

The present studies, in contrast, were originated and conducted by individuals (the third, fourth, fifth, and sixth authors) whose main exposure to operant conditioning principles was a behavior management course in which they were enrolled. The studies were carried out in the home environment, dealt with relatively mild behavioral difficulties, and required no special apparatus. In each case the experimenters served as the primary observer.

EXPERIMENT ONE

Subject and Setting

Jerry first started wearing an orthodontic device when he was eight years old. The dental mechanism consisted of a removable head band which was held in place by a plastic band around his neck. Although the recommended wearing time was approximately 12 hours a day, Jerry used the device only a few hours daily. After two years the orthodontist reported little improvement in Jerry's condition. A move to a new area resulted in a second type of removable orthodontic device which also contained two bands. Again, Jerry used the device less often than recommended. After eight years, four dentists, and approximately $3,300 in dental fees, Jerry's orthodontic condition was essentially unchanged.

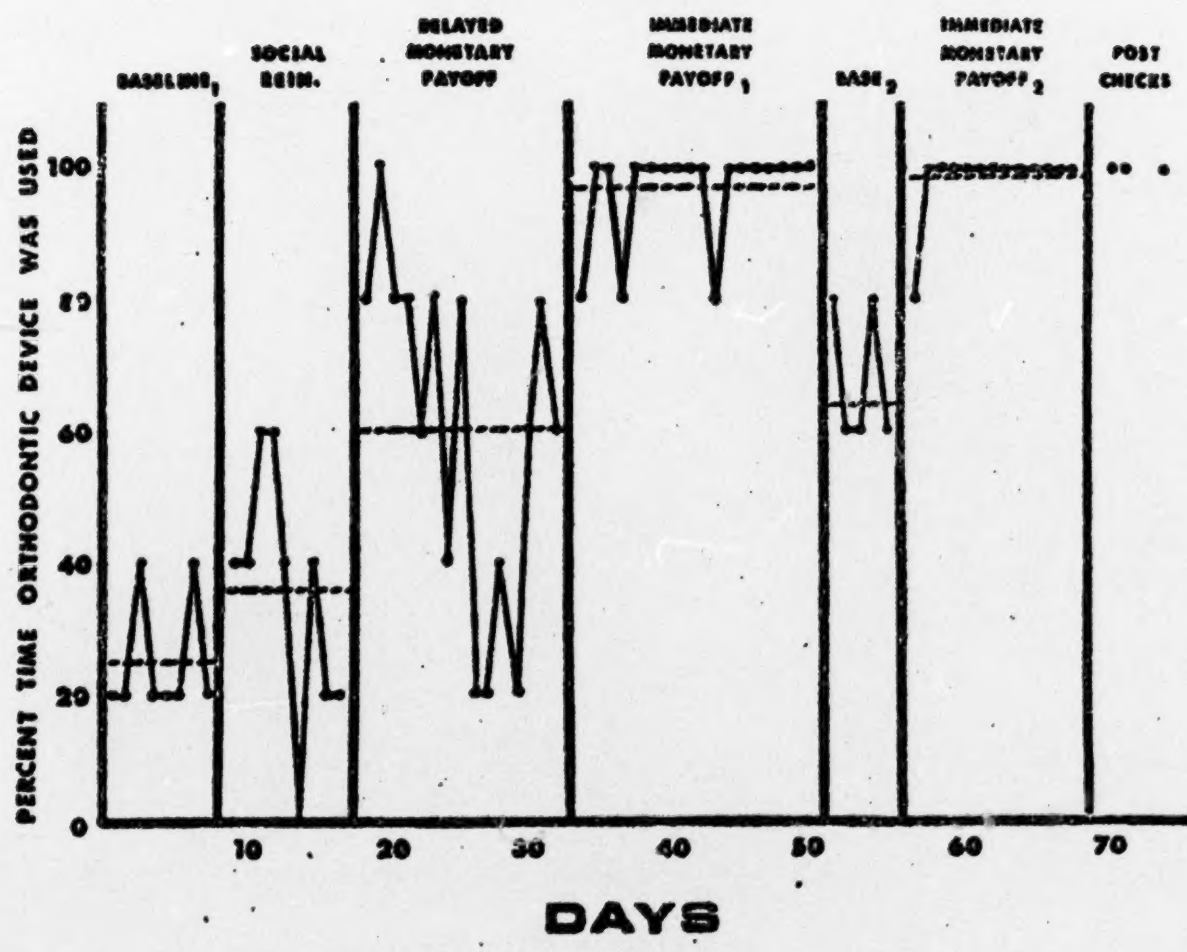
Observations

Five times a day, at varying intervals, Mrs. T. observed Jerry to determine whether or not he was wearing his orthodontic device. If both bands were in place, Jerry received a "+". If not, he received a "0." Mr. T. conducted reliability checks each weekend. In all cases agreement was 100%.

Experimental Phases

Baseline$_1$. Prior to experimental manipulations the frequency with which Jerry wore the orthodontic device was noted for an eight day period. As depicted in Fig. 1, the mean baseline rate was 25%.

Insert Fig. 1 about here


BASELINE$_1$
SOCIAL REIN.
DELAYED MONETARY PAYOFF
IMMEDIATE MONETARY PAYOFF$_1$
BASE$_2$
IMMEDIATE MONETARY PAYOFF$_2$
POST CHECKS
PERCENT TIME ORTHODONTIC DEVICE WAS USED
0
20
40
60
80
100
10
20
30
40
50
60
70
DAYS

Social Reinforcement. During Baseline$_1$ Mrs. T. noticed that she was giving Jerry attention, in the form of reprimands, when the bands were not in place. During the second phase of the study, Jerry's mother did not refer to the orthodontic device when her son wasn't wearing it, but praised him if the bands were in place. For the nine days of contingent social reinforcement, the orthodontic device was in place 36% of the time.

Dealyed Monetary Payoff. Dissatisfied with Jerry's progress during Social Reinforcement, Mrs. T. explored the effectiveness of paying her son money when he was wearing the dental device. Mrs. T. told Jerry that each time he was checked and the bands were in place he would receive 25 cents. If the bands were not in place he would lose 25 cents. The results were marked on a kitchen calendar following each observation, with the exchange of money taking place at the end of the month. For the 15 days of Delayed Monetary Payoff, the mean rate of wearing the apparatus increased to 60%.

Immediate Monetary Payoff$_1$. Although the frequency of appropriate behavior increased to more than twice the Baseline$_1$ rate during Delayed Monetary Payoff, the experimenter attempted to achieve further gains. During the Immediate Monetary Payoff$_1$ phase, Mrs. T. and Jerry made the 25 cent exchange immediately following each of the five daily observations. For the 18 days of this contingency the mean rate increased to 97%.

Baseline$_2$. Prior to a five day reversal phase, Mrs. T. informed Jerry that he was making excellent progress in improving his mouth structure and that monetary exchange no longer seemed necessary. The mean rate of 64% which occurred during Baseline$_2$ phase was greater than the rate during Baseline$_1$, Social Reinforcement, and Delayed Monetary Payoff, but below that occurring during Immediate Monetary Payoff$_1$.

Immediate Monetary Payoff$_2$. Jerry was again paid for wearing the orthodontic apparatus and lost money if the device was not in place. During the 13 days of this phase, the subject was wearing the apparatus on 98.5% of the checks.

Post Checks. On Day 68 Mrs. T. informed Jerry that money would be exchanged during each observation, but that checks would be made only occasionally. On Days 70, 71, and 74 single checks were made and in each case Jerry was wearing the orthodontic device. Observations were then made at intervals approximately two weeks apart. The bands were consistently in place. Eight months after the study was initiated, the dentist indicated that great progress in Jerry's mouth structure had been achieved, and that it was no longer necessary to wear the apparatus.

EXPERIMENT TWO

Subject and Setting

Eileen, a ten-year-old girl, was the subject for the study. For six months Mrs. G. tried, without success, to get Eileen to perform routine household tasks, such as cleaning her bedroom, sweeping the floor, and making her bed. Verbal reminders and unsystematic punishment produced little improvement in Eileen's behavior.

Observations

Table 1 contains a list of the eight tasks which Mrs. G. expected Eileen to complete. Each day Mrs. G. kept a record of the tasks Eileen performed and the points she earned. Throughout the study a neighbor made reliability checks every four to six days. All 13 checks resulted in 100% agreement.

Insert Table 1 about here

TABLE 1

The number of points Eileen could earn each day for completing eight household tasks

Task	Points
Bed made up	5
Clothes hung properly	5
Personal articles neatly placed	5
Floor swept	5
Straighten and dust living room	10
Kitchen duties	20
Bathroom duties	20
Odd jobs on request	5 - 20

Experimental Phases

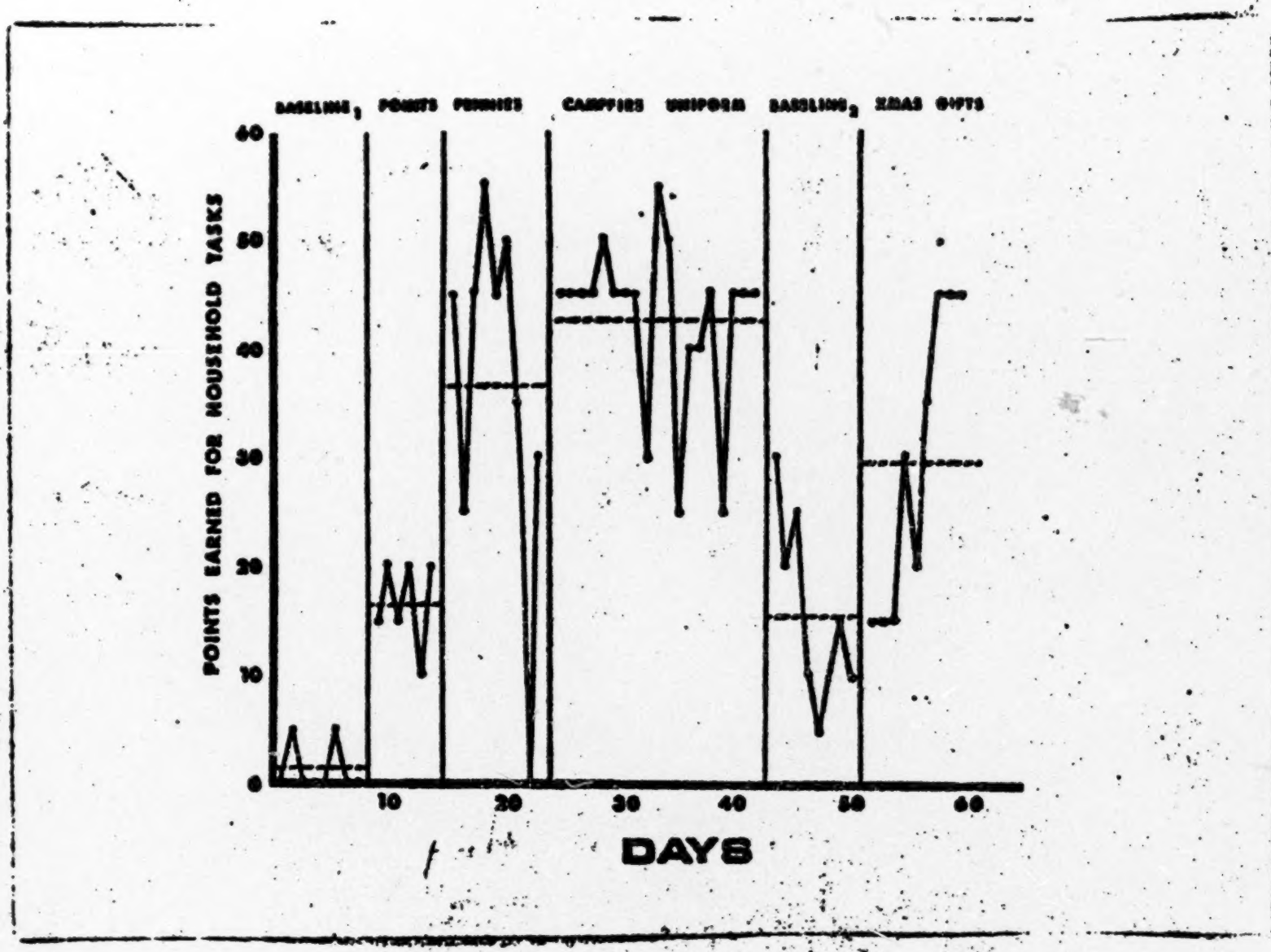
Baseline$_1$. As depicted in Fig. 2, baseline conditions were in effect for eight days. Mrs. G. explained to Eileen that mother was extremely busy lately and that Eileen, being "a big girl" was expected to share the responsibility for household tasks. Mrs. G. had devised the point system for the chores at this time but had not revealed it to Eileen. During this period Eileen completed only two tasks for an average of 1.25 points per day.

Insert Fig. 2 about here

Points. Mrs. G. described the point system to Eileen. A graph was placed on the door of Eileen's bedroom with a chart indicating the number of points which could be earned for each task. Every evening, the mother and daughter recorded the points that Eileen had earned that day. During the six days in which this contingency was in effect, Eileen's average increased to 16.7 points per day. The range of completed tasks was from two to four a day.

Pennies. The Pennies stage of the experiment was the same as the Points stage, except that each point could be exchanged for one penny. During the nine days that this system was employed, the mean number of points increased to 36.7 with a range from 0 to 55 points.

Campfire Uniform. During the final day of the Pennies stage, Eileen returned from school with a request form to join the Campfire Girls. Mrs. G. signed the form and told Eileen that she could save the points she earned and exchange them for the blouse and skirt of the uniform which prospective Campfire girls were expected to purchase. Mrs. G. assigned


BASELINE$_1$
POINTS
PENNIES
CAMPFIRE
UNIPOSE
BASELINE$_2$
XMAS GIFTS
POINTS EARNED FOR HOUSEHOLD TASKS
0
10
20
30
40
50
60
DAYS

a cost of 400 points to each item of the uniform. By the 19th day of this stage, Eileen had earned in excess of 800 points and was able to purchase the blouse and skirt. The mean number of points earned was 42.4 per day.

Baseline$_2$. Baseline conditions were reinstated for eight days. Mrs. G. told her daughter that she was nearing the end of the graph paper and that future reinforcement would not be available until "my next paycheck comes." The mean of 15.6 points for this period was greater than that during Baseline$_1$, but below the means during Points, Pennies, and Campfire Uniform phases.

Xmas Gifts. Mrs. G. informed Eileen that the points she earned could be saved toward the purchase of Christmas gifts, at the exchange rate of one penny per point. The mean number of points for the nine days of this phase was 29.4. This average was greater than that achieved during Baseline$_1$, Points, or Baseline$_2$, but below the means attained during the Pennies and Campfire Uniform stages. This finding possibly indicates that buying Christmas gifts was less reinforcing for Eileen than earning pennies or a uniform. It should be noted, however, that the number of points she earned was increasing the last four days of the Christmas Gifts stage and might have reached the level of the previous stages if the study had been continued.

EXPERIMENT THREE

Subject and Setting

The subject for the study was a four-year-old boy who, according to his parents' reports, whined and shouted at a high frequency. The experiment took place in Terry's home.

Observations

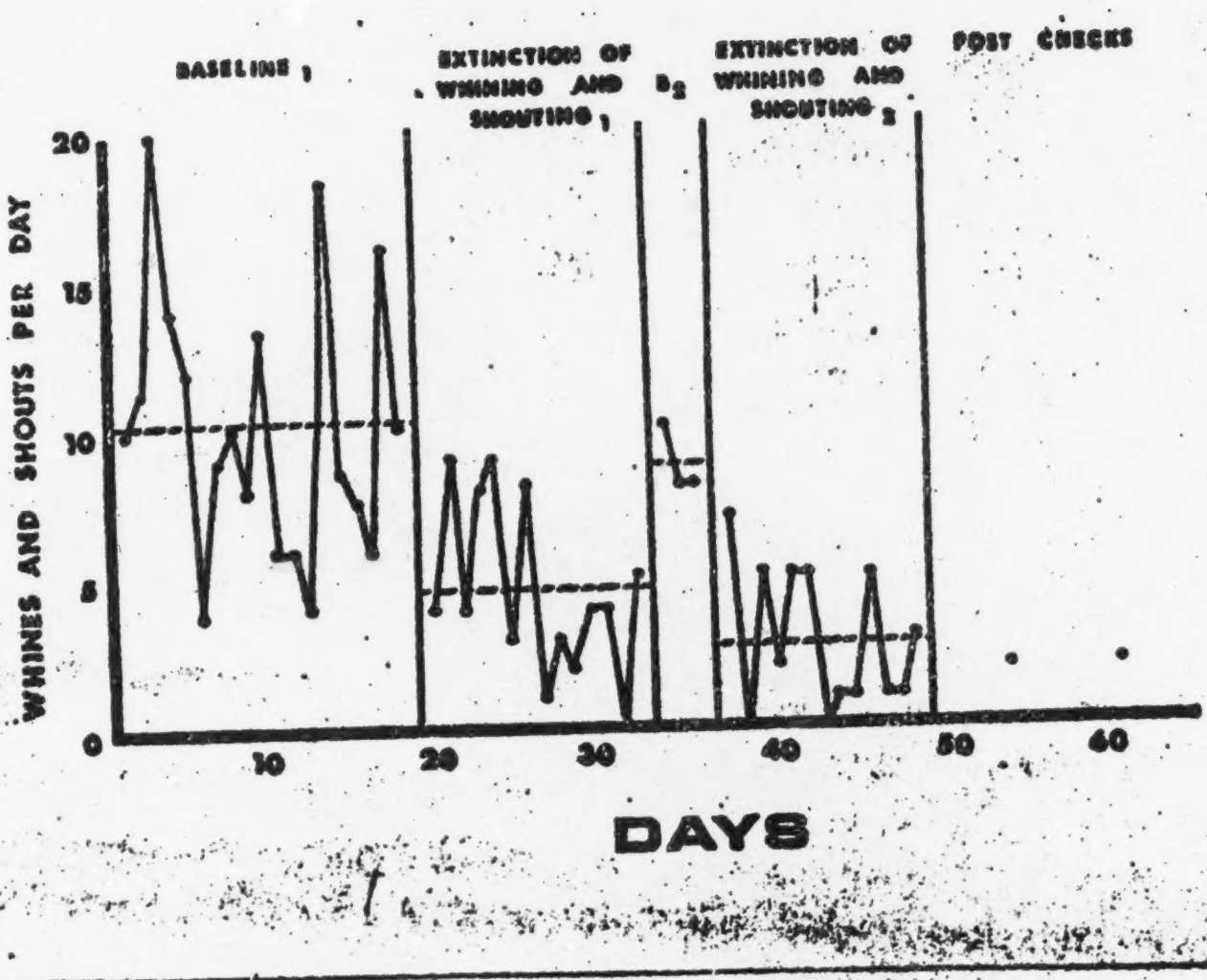
A record of Terry's verbalizations, which were of such pitch and loudness that the observer considered them to be whines or shouts, was kept by the subject's parents. Measurements were taken from approximately 9:00 a.m. to 9:00 p.m. On weekdays Mrs. J. kept a daily record from 9:00 a.m. until 6:00 p.m., whereas Mr. J. noted the frequency from 6:00 p.m. until 9:00 p.m. Mr. J. recorded the data from 9:00 a.m. until 9:00 p.m. on weekends. Reliability checks were attained six times by having both parents record behaviors simultaneously for the entire day. The reliability index was determined by dividing the smaller observed frequency by the larger observed frequency. Agreement ranged between 75 and 100% with a mean of 85.5%.

Experimental Phases

Baseline$_1$. The frequency of Terry's shouts and whines under "normal" conditions was recorded for 19 days. During this period mother and Father attended to their son's inappropriate verbalizations by either comforting him or by ordering him to stop. Figure 3 indicates that the mean number of whines and shouts for the baseline period was 10.2 per day.

Insert Fig. 3 about here

Extinction of Whining and Shouting$_1$. During the second phase of the study, Terry's parents ignored him when he whined or shouted. If he emitted an inappropriate verbalization, Mother and Father turned away from him and engaged in other activities. Whenever possible, they left the area entirely. For the 14 days of extinction, the mean number of whines and shouts decreased to 4.6 per day. The consistency of the effect was demonstrated by the fact


BASELINE 1
EXTINCTION OF WHINING AND SHOUTING 1
B2
EXTINCTION OF WHINING AND SHOUTING 2
POST CHECKS
WHINES AND SHOUTS PER DAY
20
15
10
5
0
10
20
30
40
50
60
DAYS

that all 14 data points during this period were below the mean which occurred during Baseline$_1$.

Baseline$_2$. Baseline conditions were reinstated for three days. Mr. and Mrs. J. again attended to Terry when he whined or shouted. The mean for this phase increased to 8.7 verbalizations per day.

Extinction of Whining and Shouting$_2$. For 13 days Terry's parents again ignored his inappropriate verbal behaviors. The mean number of whines and shouts decreased to 2.8 per day. This average was below that attained during the previous extinction stage.

Post Checks. On the 5th and 11th days after the formal termination of Extinction of Whining and Shouting$_2$, post checks on Terry's behavior were made. During both days a total of two whines and shouts was noted.

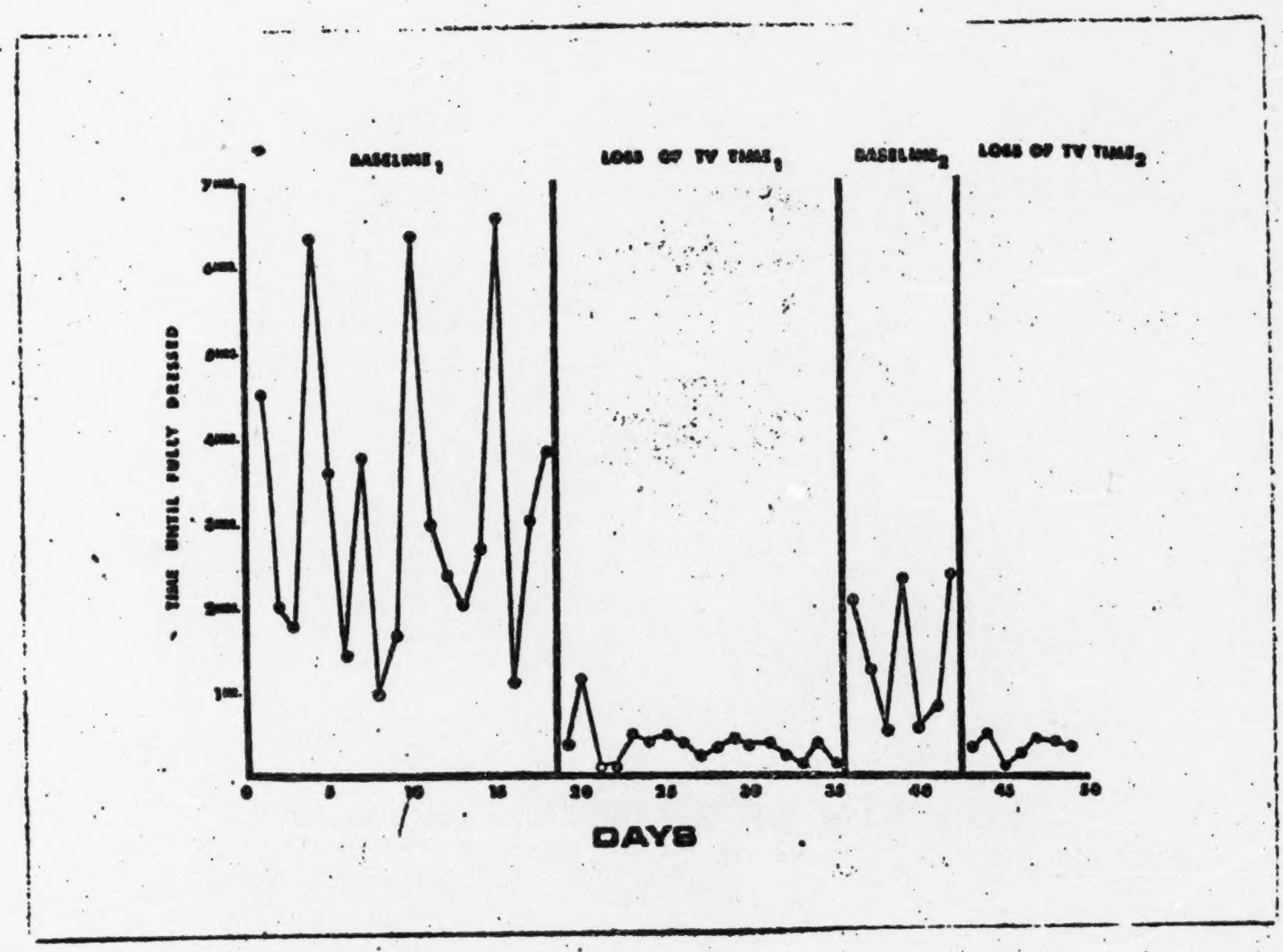
EXPERIMENT FOUR

Subject and Setting

Elaise, a five-year-old preschool girl, had a tendency to take long periods of time to dress herself after waking each morning. Her mother's efforts in putting the clothes out the previous night and insisting that she get dressed more quickly were ineffective in changing Elaise's behavior.

Observations

Mrs. R. Recorded the time Elaise arose each morning and the time at which she became fully dressed. The duration of time was computed and graphed daily. Five reliability checks were conducted by a sibling of the subject and in each case agreement with Mrs. R. was 100%.


BASELINE$_1$
LOSS OF TV TIME$_1$
BASELINE$_2$
LOSS OF TV TIME$_2$
TIME UNTIL FULLY DRESSED
DAYS

Experimental Phases

Baseline$_1$. A record of the amount of time Elaise spent in dressing during all experimental sessions is shown in Fig. 4. Under "normal" conditions the range of times was from 1 hour 0 mins. to 6 hours 35 mins. The mean rate for the 18 days of Baseline$_1$ was 3 hours 10 mins.

Insert Fig. 4 about here

Loss of TV Time$_1$. Beginning with Day 19 Elaise was required to finish dressing within 30 mins. after awaking. If she failed to meet the criterion, she was not permitted to watch television until 3:30 p.m. that day. During the 17 days this contingency was in effect her average dressing time was 23 mins. Only once did she miss her television privileges.

Baseline$_2$. The punishment criterion was removed for seven days. The mean duration of dressing time during this phase was 1 hour 26 mins. This rate was greater than that occurring during the Loss of TV Time$_1$ stage but lower than the rate during Baseline$_1$.

Loss of TV Time$_2$. Elaise was again required to dress within 30 minutes after waking. Her mean dressing time for the seven days of this condition was 20 mins. This average was four mins. less than the average during Loss of T V Time$_1$.

DISCUSSION

One of the most frequently stated advantages of operant conditioning techniques is that the procedures are uncomplicated and can easily be applied to therapeutic situations. Nevertheless, a perusal of the pertinent

literature indicates the presence of relatively few investigators of operant principles. One hypothesis for this finding might be that although the application of operant conditioning principles is simple, scientific investigation remains a complex task. The above studies, like those reported by Hall, Axelrod, Foundopoulos, Shellman, Campbell, and Cranston (in press) and Hall, Fox, Willard, Goldsmith, Emerson, Owen, Porcia, and Davis (1970) indicated, however, that individuals with relatively little training in operant techniques can devise and conduct behavioral experiments without compromising scientific rigor. In each experiment the investigator provided procedural manipulations (i.e. a "reversal" design) which strengthened the validity of his findings. The experimenter served as the primary observer for his study, but also used a second observer to establish the reliability of his measurements.

The problem behaviors in the above experiments are typical of those found in many homes. The difficulties were not sufficiently severe that the parents sought clinical assistance, but they were a source of family friction and could have led to greater problems if a solution were not discovered. An example of this notion was given in Experiment One. The orthodontist indicated that had Jerry used the dental device when treatments were first started, his mouth structure would have been corrected in less than a year, and his parents could have saved approximately $2,100. in dental fees. The cost of the experiment was less than $30.

In Experiments One and Two different positive reinforcement techniques, including token and social reinforcement, increased the frequency of appropriate behaviors. In Experiment Three an extinction procedure resulted in a decrease in whining and shouting, and in Experiment Four contingent punishment eliminated the excessive dressing time of a four-year-old girl.

The studies were designed in such a manner tht the experimenter (i.e., parent) could apply the procedures and record the data without significantly upsetting his daily routine. This factor is crucial for studies conducted in a home environment since the investigator usually cannot devote his entire attention to the problem behavior. The fact that the investigators employed resources already found in most homes increases the general applicability of the present experiments.

A frequent criticism of behavior modification studies is that although the subject often demonstrates a dramatic change in behavior, the procedures are applied for a relatively short period of time. In Experiment $_1$, however, the study was continued for eight months - at which time the problem situation was completely corrected. The procedures in Experiment $_2$ were being applied at the time this article was written, although some modification of the original techniques were made. Mrs. G. reported that the tasks required for reinforcement had changed and that Eileen was now a party to choosing the back-up reinforcers. Apparently the effects of the procedure favorably impressed others in the subject's environment. Mrs. G. reported that an older daughter observed the change in Eileen's behavior, read several operant conditioning studies, and subsequently trained the family cat to sit up, shake hands and roll over. In addition, a neighbor of Mrs. G., who originaly performed reliability checks, reported success with similar behavior modification techniques with her six children. The implications are obvious if effective systems are being developed which can be adapted and put to practical use without formal study or training.

REFERENCES

Hall, R.V., Axelrod, S., Foundopoulos, M., Shellman, J., Campbell, R.A., and Cranston, S.S. The effective use of punishment in the classroom, in press.

Hall, R.V., Fox, R., Willard, D., Goldsmith, L., Emerson, M., Owen, M., Porcia, E., and Davis, F. Modification of disputing and talking-out behaviors with the teacher as observer and experimenter. Paper presented at American Educational Research Association Convention, Minneapolis, 1970.

Hawkins, R.P., Peterson, R.F., Schweid, D., and Bijou, S.W. Behavior therapy in the home: Amelioration of problem parent-child relations with the parent in a therapeutic role. Journal of Experimental Child Psychology, 4, 99-107.

Wahler, R.G. Oppositional children: A quest for parental reinforcement control. Journal of Applied Behavior Analysis, 1969, 2, 159-170.

Zeilberger, J., Sampen, S.E., and Sloane, H.N. Modification of a child's problem behaviors in the home with the mother as therapist. Journal of Applied Behavior Analysis, 1968, 1, 47-53.

FOOTNOTES

[1]This research was partially supported by Grant HD 03144 from the National Institute of Child Health and Human Development, Bureau of Child Research and Department of Human Development, University of Kansas. Reprints may be obtained from R. Vance Hall, Juniper Gardens Children's Project 2021 North Third Street, Kansas City, Kansas 66101.

[2]Formally a post doctoral trainee on Grant HD 00183 from the U.S. Public Health Service, Department of Health Education and Welfare, National Institute of Child Health and Human Development, now at the University of Connecticut.

FIGURE CAPTIONS

Fig. 1. A record of the percentage of time a teen-age boy used an orthodontic device. Measurements were taken five times a day at varying intervals. Baseline$_1$ - before experimental manipulations. Social Reinforcement - ignoring subject when he was not wearing the device and praising him when was. Delayed Monetary Payoff - paying youngster 25 cents when he had apparatus in place during an observation, and charging him 25 cents when it was not in place. Monetary exchange took place at end of month. Immediate Monetary Payoff$_1$ - same as Delayed Monetary Payoff except that money was exchanged immediately after each check. Baseline$_2$ - reinstatement of Baseline$_1$. Immediate Monetary Payoff$_2$ - reinstatement of Immediate Monetary Payoff$_1$ Post Checks - periodic checks after termination of formal experiment.

Fig. 2. The number of points a ten-year-old girl earned each day for performing household tasks. Baseline$_1$ - before experimental manipulations. Points - graphing the points the subject earned each aday. Pennies - points were exchanged for pennies at the rate of one penny per point. Campfire Uniform - points were exchanged for blouse and skirt of campfire uniform at rate of 400 points per item. Baseline$_2$ - reinstatement of Baseline$_1$. X-mas Gifts - points could be exchanged for money toward purchase of Christmas gifts, at rate of one penny per point.

Fig. 3. The frequency of shouts and screams per day made by a four-year-old boy. Baseline$_1$ - prior to experimental manipulations. Extinction of Whining and Shouting$_1$ - ignoring inappropriate verbalizations. Baseline$_2$ - reinstatement of Baseline$_1$. Extinction of Whining and Shouting$_2$ - reinstatement of previous extinction procedure. Post Checks - observations of subject after formal termination of experiment.

Fig. 4. Duration of time it took a five-year-old girl to get dressed after waking. Baseline$_1$ - before experimental procedures. Loss of TV Time$_1$ - subject was not permitted to watch television if she was not dressed within 30 mins. of arising. Baseline$_2$ - reinstatement of Baseline$_1$. Loss of TV Time$_2$ - reinstatement of Loss of TV Time$_1$.